Dundee, Harold A. 1965. *Eurycea tynerensis*, p. 22. *In* W. J. Riemer (ed.), Catalogue of American Amphibians and Reptiles. American Society of Ichthyologists and Herpetologists, Kensington, Maryland.

## *Eurycea tynerensis* Moore & Hughes
## Oklahoma salamander

*Eurycea tynerensis* Moore & Hughes, 1939:697. Type-locality, "Tyner Creek, a tributary of Barron Fork Creek near Proctor, Adair County, Oklahoma." Holotype not designated; 30 syntypes, collected by George A. Moore and R. Chester Hughes, as follows: U.S. Natl. Mus. 108548 (12 specimens); Univ. Michigan Mus. Zool. 85534 (5); Mus. Comp. Zool. 25533 (1 specimen, formerly catalogued at University of Michigan); Stovall Mus. Sci. and Hist. (formerly, Univ. Oklahoma Mus. Zool.) 21325 (3, however Moore & Hughes say 6 syntypes were originally deposited there); Oklahoma State Univ. (6 deposited there according to Moore & Hughes, but specimens cannot be located).

• Content. No subspecies are recognized.

• Diagnosis. This species is neotenic, retains gills throughout life, and is similar to other neotenic members of the genus as well as to larval individuals of normally metamorphosing forms. From other neotenic species it may be distinguished by its combination of a normally grayish streaked dorsum, 19–21 costal grooves, pale weakly pigmented belly, and low dorsal tail fin. It differs from *Eurycea nana* in not having a brown dorsum and in attaining a size greater than 50 mm; from *E. neotenes* in not having a yellow dorsum; from *E. troglodytes* in having more than 13 costal grooves; from *E. multiplicata* in having a belly that is neither yellow nor gray.

• Descriptions. Large larvae reach 80 mm in total length, and a length from the snout to the posterior end of the vent of 41 mm. Sexual maturity is attained at a snout-vent length of 26 mm. Costal grooves number 19–21. The sacrum typically is the 23rd vertebra, occasionally the 22nd or 24th. There are 7–11 costal grooves between adpressed limbs. Lateral line organs are numerous. The dorsum has a reticulate pattern of black and cream, or it has a light to dark gray ground with dark spots and streaks, or occasionally individuals are uniformly gray dorsally. The upper surface of the tail has a broad brownish stripe. The venter is unpigmented except for a few melanophores on the chin and lower jaw.

Individuals of this species apparently do not undergo natural transformation, but when induced by drugs they achieve partial or complete metamorphosis except for failure to develop an ossified parasphenoid and paravomerine teeth.

Eggs are described by Dundee (MS). In nature they are probably attached to stones, for hormone-stimulated animals so attach them in the laboratory. Hatchlings are 9–13 mm in total length.

• Illustrations. Illustrations of the animals, habitats, eggs, and larvae, are included in Dundee (MS). Experimentally metamorphosed animals are pictured in Kezer (1952). Moore & Hughes (1939) illustrate an adult, and also the habitat at the type-locality.

• Distribution. The species is restricted to the drainages of the Grand (Neosho) and Illinois Rivers of the Springfield Plateau section of the Ozark plateaus of southwestern Missouri, northwestern Arkansas, and northeastern Oklahoma. It is apparently confined to small spring-fed, gravel-bottomed streams with temperatures normally not exceeding 24°C and to altitudes under 305 m (1000 feet). Animals tend to remain in very localized parts of streams in association with specific qualities of substratum. Recorded localities are in Ottawa, Cherokee, Mayes, and Adair Counties, Oklahoma; Benton County, Arkansas; and McDonald County, Missouri (Dundee, MS, 1947; Anderson, 1957).

• Fossil Record. None.

• Pertinent Literature. Other than the type description, the only account of note is that of Kezer (1952). Dundee, in an unpublished dissertation, presents a major study of the life history and habitat selection of the species. It includes descriptions of the eggs, reproductive habits, growth, food habits, movements and behavior.

• Remarks. Sexual maturity is reached in about two years. The creamy-yolked eggs probably are laid in the fall or late spring; the time seems to vary among populations.

Preliminary evidence shows that low thyroidal activity probably is responsible for neoteny in this species (Dundee & Gorbman, 1960).

Experimentally induced metamorphosis by Kezer (1952) gives no evidence that this species is identical with any previously named plethodontid; hence the name is considered valid. Other induced metamorphoses show that the species is correctly assigned to the genus *Eurycea* (Dundee, 1962).

An acanthocephalan, *Acanthocephalus vancleavei*, is described from *E. tynerensis* by Hughes & Moore (1943a). A monogenean fluke, *Sphyranura euryceae*, also from this salamander, is described by Hughes & Moore (1943b).

• Etymology. This species is named for Tyner Creek, the type-locality.

### Comment

Additional studies are needed to establish more precisely the relationship that exists between neoteny and the functioning of endocrine and genetic mechanisms in this species.

Size and color differences among populations, coupled with differences in breeding seasons, suggest that subspeciation or differentiation has occurred (Dundee, MS).

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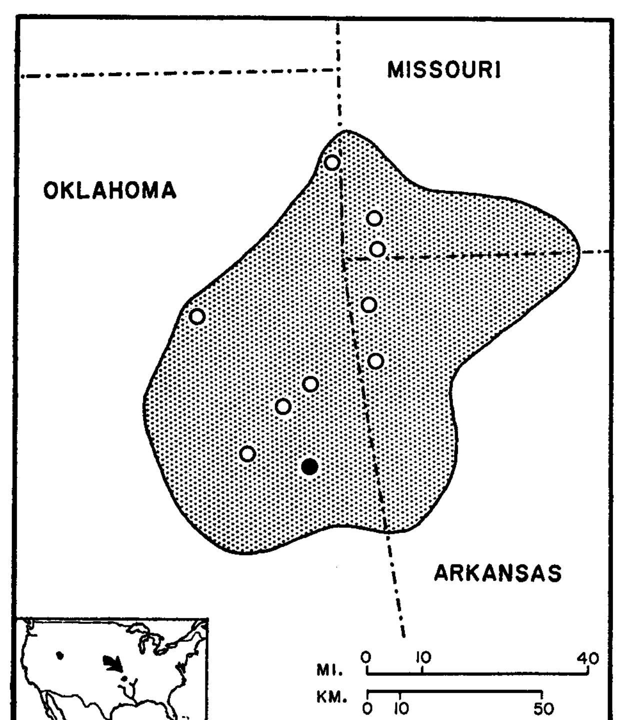
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Map. The solid symbol marks the type-locality. All other known localities are represented by hollow symbols. The presumed distribution range shown is based on known records, drainage systems, and physiographic factors.

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Issued 15 October 1965. Publication is supported by National Science Foundation grant G24231. 